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place themselves at right angles to the direction of the light—that is, with their upper surfaces to the window. Leaves and stems, therefore, show sensitiveness characteristic of each. Some stems, however, like those of Virginia creeper, turn away from light, enabling them to cling to dark walls. Roots, which are generally buried in the soil, rarely exhibit sensitiveness to light, and when they do it is usually to turn from it. If light comes to the organ from two directions it will bend toward the source of the stronger light, and differences which will affect the plant are far more minute than can be detected by the eye.”

In a similar way Dr. MacDougal discusses ‘how cold affects plants’ (Chapter VI). After speaking of the general appearance of a frozen leaf, he says (p. 88): “If now a section is made of a frozen leaf it will be found that the spaces between the cells usually containing air are filled almost solidly with ice crystals. From whence is this ice derived?” * * * “Protoplasm even in its simplest forms is highly automatic and self-regulating. When the cells of a leaf are subjected to a low temperature they contract, and a portion of the water is driven out into the intercellular spaces, where it is frozen. By this provision the proportion of water in the cells is reduced and the danger of ice formation and consequent destruction is averted. If now the temperature is again lowered, an additional amount of water is forced into the intercellular spaces, rendering the cell-solutions still more concentrated, and less easily crystallized into ice.” * * “It is thus to be seen that the extrusion of water into the intercellular spaces is a protective device of the protoplasm.”

It is unnecessary to quote more from these suggestive chapters. These examples will sharpen the interest of every reader of this notice, who may be assured that this interest will not flag as he reads the pages for himself. The book will make an admirable addition to the scientific alcove of every public library.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

Revision of the Orthopteran group Melanopli (Acrididæ), with special reference to North American forms. By SAMUEL HUBBARD

SCUDDER. Proc. U. S. National Museum, Vol. 20, pp. 1-421, Plates 1-26. 1897.

This work by Mr. Scudder deals with a group of acridians of which the Rocky Mountain locust and the common red-legged locust are familiar forms. The Melanopli are essentially North American, and on account of the number of the species and the variety of the forms present great difficulties to the student.

A short introduction gives the characters and limitations of the group, and its geographical distribution; also an interesting note concerning the dimorphism in the length of the tegmina, and a statement as to the sources of the material used in the work, acknowledgments of aid received, and a few words as to certain details of presentation.

An elaborate analytical key to the genera is given, and there are also keys to the species of all genera not monotypic. These keys are successful in epitomizing a large amount of close study, and, with the aid of the figures, afford a ready means for the determination of the species; in all cases, however, the descriptions must be consulted for confirmatory data.

The key to the species of *Melanoplus* (pp. 124-139) is so long as to suggest that a separate tabulation of the groups, designated as series, and of the species under each group, would have been more useful.

The generic and specific descriptions are given with the detail characteristic of Mr. Scudder's work. Thirty genera are recognized and of these eighteen are described as new, of North American species 208 (113 new) are described. An analytical key to the Old World species of *Podisma* with brief notes, including descriptions of two new species, is also given.

The material upon which these genera and species are based has in most cases been ample, more than 8,500 specimens having been studied; of the 208 species but two are unknown to Mr. Scudder; 31 species are known from one sex only and 21 species from uniques. The females outnumber the males, 4,596 to 3,911, or, stated differently, in 96 species the females are the most abundant, in 75 species the males; in 37 species the numbers are the same. The bibliography and geographical distribution are given in admirable detail.

Plate one illustrates the venation of the tegmina of species of *Phoetaliotes* and of *Melanoplus*; the other plates, 2-26, show the abdominal appendages of the males of all but five of the species described.

In an appendix are given (1) a list of the heretofore described North American species with original and present nomenclature, (2) brief notes on undetermined forms, and (3) a list of South American *Melanopli*.

Mr. Scudder's contention (p. 187) for crediting *Melanoplus spretus* to Uhler can hardly be accepted; it is directly against the well-established canon that a name must take its authority from the author first defining it, and if admitted and generally applied would cause much instability in nomenclature.

Typographically both text and plates are well done; a few inaccuracies and omissions may be noted: page 76, Ann. rep. chief eng., the date 1877 should be 1876; page 267, Can. nat., and Bost. journ. nat. hist., the date 1868 should be 1862; page 270, the date of Fieber, Lotos, is given 1853 and on page 403 as 1854; page 360, the date of Serville, Orth., is given 1839 and on page 404 as 1838; page 403, *Pezotettix altitudinum* and *P. chenopodii* are omitted from the list, 1868 for *Pezotettix borealis* should be 1862, *Acridium differentiale* Uhler should be Uhler Ms. Thomas; page 404, 1879 for *Pezotettix marshallii* Scudder should be 1876.

SAMUEL HENSHAW.

Ethnological Studies among the Northwest Central Queensland Aborigines. By WALTER E. ROTH. Brisbane, Government Office. 1897. With 438 Illustrations. Pp. 199.

Mr. Roth was for several years surgeon to various hospitals in the districts south of the Gulf of Carpentaria, and had excellent opportunities for studying the languages and customs of the native blacks. The results he has condensed in the present volume. They rank among the most valuable contributions ever made to the ethnography of Australia, partly because the writer is a trained observer and careful narrator, partly because he made himself acquainted with the dialects of the tribes, without which knowledge it is vain to attempt an

understanding of the ethnography of any people whatsoever.

One of his discoveries was that of the existence of a well-defined, manual-sign language extending throughout the entire district of his study, and indications of its presence elsewhere. Of these manual signs he presents 213 with their significations, some conveying simple, others complex ideas.

An excellent conspectus of the languages, grammatical, lexicographic and comparative, shows their structure and relationship. The intricate subject of personal nomenclature, consanguinity and class systems is clearly set forth and shown to be not the prevention of incest, as most writers have taught, but a scheme to regulate the proper distribution of the food supply. In this connection it may be added that he also corrects the common notion that the operation of introcison, practiced on the males, is for the purpose of limiting procreation. It has, in fact, no such effect.

The aboriginal food-supply is exhaustively considered. Cannibalism continues till this day in the outlying districts, and death from the most repulsive diseases does not prevent the corpse being eaten. Much information is added on implements, utensils, personal ornaments and trade or barter. Among these the various forms of the boomerang are described and figured. Of the message sticks Dr. Roth says positively that the designs upon them convey no significance and are intended merely to distinguish them from the sticks belonging to others.

The lines of barter are widely extended through Australia; their course is marked by certain signs and signal posts, easily caught by the native eye, and in spite of the constant wars a comparatively active commerce exists. One of the most interesting articles of barter is that of songs and dances (corrobborees). These are taught for pay (blankets, food, etc.) by one tribe to another. A tribe often sends picked men long distances to learn them, and, what is singular, the songs are frequently in a language wholly remote and unintelligible to the tribe buying them, but they are learned by rote and repeated with surprising accuracy (as the ignorant priest does his Latin liturgy).

The last chapter is entitled 'Ethno-pornog-